

Pushing the Envelope			
2004 Science			
Grade Level Articulations			
Arizona Science			
Grade 5			
Activity/Lesson	State	Standards	
Types of Engines (pgs. 11-23)	AZ	SCI.5.1.3.PO 5	Analyze and interpret data to explain correlations and results; formulate new questions. Identify possible relationships between variables in simple investigations (e.g., time and distance; incline and mass of object).
Chemistry (pgs. 25-41)	AZ	SCI.5.5.1.PO 2	Understand physical and chemical properties of matter: Distinguish between mixtures and compounds.
Physics and Math (pgs. 43-63)	AZ	SCI.5.5.2.PO 2	Understand the relationship between force and motion: Describe the various effects forces can have on an object (e.g., cause motion, halt motion, change direction of motion, cause deformation).
Physics and Math (pgs. 43-63)	AZ	SCI.5.5.2.PO 3	Understand the relationship between force and motion: Examine forces and motion through investigations using simple machines (e.g., wedge, plane, wheel and axle, pulley, lever).
Rocket Activity (pgs. 69-75)	AZ	SCI.5.5.2.PO 2	Understand the relationship between force and motion: Describe the various effects forces can have on an object (e.g., cause motion, halt motion, change direction of motion, cause deformation).
Rocket Activity (pgs. 69-75)	AZ	SCI.5.5.2.PO 3	Understand the relationship between force and motion: Examine forces and motion through investigations using simple machines (e.g., wedge, plane, wheel and axle, pulley, lever).
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2004 Science			
Grade Level Articulations			
Arizona Science			
Grade 6			
Activity/Lesson	State	Standards	
History of Aviation Propulsion (pgs. 5-9)	AZ	SCI.6.2.1.PO 1	Identify individual, cultural, and technological contributions to scientific knowledge: Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Jacques Cousteau [inventor, marine explorer], supports Strand 4; William Beebe [scientist], supports Strand 4; Thor Heyerdahl [anthropologist], supports Strand 6).
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2004 Science			
Grade Level Articulations			

Arizona Science			
Grade 8			
Activity/Lesson	State	Standards	
History of Aviation Propulsion (pgs. 5-9)	AZ	SCI.8.2.1.PO 1	Identify individual, cultural, and technological contributions to scientific knowledge: Identify how diverse people and/or cultures, past and present, have made important contributions to scientific innovations (e.g., Watson and Crick [scientists], support Strand 4; Rosalind Franklin [scientist], supports Strand 4; Charles Darwin [scientist], supports Strand 4; George Washington Carver [scientist, inventor], supports Strand 4; Joseph Priestley [scientist], supports Strand 5; Sir Frances Bacon [philosopher], supports Strand 5; Isaac Newton [scientist], supports Strand 5).
Types of Engines (pgs. 11-23)	AZ	SCI.8.5.2.PO 1	Understand the relationship between force and motion: Demonstrate velocity as the rate of change of position over time.
Types of Engines (pgs. 11-23)	AZ	SCI.8.5.2.PO 3	Understand the relationship between force and motion: Describe how the acceleration of a body is dependent on its mass and the net applied force (Newton's 2nd Law of Motion).
Types of Engines (pgs. 11-23)	AZ	SCI.8.5.2.PO 5.b	Understand the relationship between force and motion: Create a graph devised from measurements of moving objects and their interactions, including (velocity-time graphs)
Chemistry (pgs. 25-41)	AZ	SCI.8.5.1.PO 4	Classify matter in terms of elements, compounds, or mixtures.
Chemistry (pgs. 25-41)	AZ	SCI.8.5.1.PO 7	Understand physical and chemical properties of matter: Understand physical and chemical properties of matter: Investigate how the transfer of energy can affect the physical and chemical properties of matter.
Physics and Math (pgs. 43-63)	AZ	SCI.8.5.2.PO 2	Understand the relationship between force and motion: Identify the conditions under which an object will continue in its state of motion (Newton's 1st Law of Motion).
Physics and Math (pgs. 43-63)	AZ	SCI.8.5.2.PO 3	Understand the relationship between force and motion: Describe how the acceleration of a body is dependent on its mass and the net applied force (Newton's 2nd Law of Motion).
Physics and Math (pgs. 43-63)	AZ	SCI.8.5.2.PO 4	Understand the relationship between force and motion: Describe forces as interactions between bodies (Newton's 3rd Law of Motion).
Rocket Activity (pgs. 69-75)	AZ	SCI.8.5.2.PO 3	Understand the relationship between force and motion: Describe how the acceleration of a body is dependent on its mass and the net applied force (Newton's 2nd Law of Motion).
Rocket Activity (pgs. 69-75)	AZ	SCI.8.5.2.PO 4	Understand the relationship between force and motion: Describe forces as interactions between bodies (Newton's 3rd Law of Motion).

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2004 Science			
Grade Level Articulations			
Arizona Science			
Grades 9-12			
Activity/Lesson	State	Standards	
Chemistry (pgs. 25-41)	AZ	SCI.9-12.5.1.PO 1	Understand physical and chemical properties of matter: Describe substances based on their physical properties.
Chemistry (pgs. 25-41)	AZ	SCI.9-12.5.1.PO 4	Understand physical and chemical properties of matter: Separate mixtures of substances based on their physical properties.
Physics and Math (pgs. 43-63)	AZ	SCI.9-12.5.2.PO 3	Understand the relationship between force and motion: Explain how Newton's 1st Law applies to objects at rest or moving at constant velocity.
Physics and Math (pgs. 43-63)	AZ	SCI.9-12.5.2.PO 4.a	Understand the relationship between force and motion: Using Newton's 2nd Law of Motion, analyze the relationships among the net force acting on a body, the mass of the body, and the resulting acceleration (graphically)
Physics and Math (pgs. 43-63)	AZ	SCI.9-12.5.2.PO 4.b	Understand the relationship between force and motion: Using Newton's 2nd Law of Motion, analyze the relationships among the net force acting on a body, the mass of the body, and the resulting acceleration (mathematically)
Physics and Math (pgs. 43-63)	AZ	SCI.9-12.5.2.PO 5	Understand the relationship between force and motion: Use Newton's 3rd Law to explain forces as interactions between bodies (e.g., a table pushing up on a vase that is pushing down on it; an athlete pushing on a basketball as the ball pushes back on her).
Rocket Activity (pgs. 69-75)	AZ	SCI.9-12.5.2.PO 5	Understand the relationship between force and motion: Use Newton's 3rd Law to explain forces as interactions between bodies (e.g., a table pushing up on a vase that is pushing down on it; an athlete pushing on a basketball as the ball pushes back on her).